

ORIGINAL ARTICLE

Oral health care in the 21st century: It is time for the integration of dental and medical education

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Abstract

Major issues exist in the provision of oral health care in America, especially to underserved populations. Access to care, health disparities, an aging population with higher chronic disease burden, and rising healthcare costs continue to impact health outcomes for millions. The marginalization of oral health care, like that of behavioral health care, is a contributor. This perspective presents an idea whose time has come: putting the mouth back in the body. Several national reports stress the imperative to better integrate the practice of medicine and dentistry, including the first-ever Surgeon General's Report on Oral Health in 2000. A plan to lead a multifaceted integration of oral health into overall health is proposed. Leaders will come from new educational and practice models stressing teamwork, interprofessional education, innovative residency training programs and even dual degree options.

KEYWORDS

behavioral sciences, health education, interprofessional education, professional education, professional interest

1 | INTRODUCTION

A 2001 *Academic Medicine* paper, "Oral Health Care in the 21st Century: Implications for Dental and Medical Education," highlighted several crucial factors to explain the separation of medicine and dentistry into "different pathways for education, licensure, and scope of practice for a variety of complex historical, economic, political, and philosophical reasons."¹ Recent interest in the integration of oral health and medicine is based upon several studies strongly suggesting that inclusion of oral health in primary care improves access to care and general health outcomes while reducing overall healthcare costs.^{2,3}

2 | THE PROBLEM

Multiple potential solutions have been offered for integrating oral health into medicine, ranging from interprofessional education (IPE), to patient-centered care,⁴ to methods to

improve access to care for vulnerable populations most affected by poor oral health and its attendant suffering.⁵ All of these can improve population outcomes and may lower health care costs, achieving the triple aim of healthcare improvement.^{6,7} IPE is promoted and even mandated by the American Association of Medical Colleges (AAMC) and American Dental Educators Association (ADEA), but medical schools' accreditation does not specifically require oral health as part of IPE in accreditation standards, nor does dental school accreditation specifically require IPE with medicine. The Center for Integration of Primary Care and Oral Health (CIPCOH), a national center based at Harvard University and funded by the Health Resources and Services Administration, surveyed 14 primary care specialties ranging from nursing to pediatrics to family medicine to pharmacy about their oral health curricula and learning objectives.⁸⁻¹⁴ Although a majority of survey respondents agreed that oral health knowledge is important for their learners, most reported that their curricula includes only 1-3 hours of oral health instruction.⁸⁻¹⁴ Given the close association of

poor oral health and its attendant inflammation with cardiovascular disease, diabetes, and other noncommunicable diseases, this is not enough.^{15,16} There are also the increased personal and systemic costs of failure to deliver appropriate care to patients requiring heart valve replacement or chemotherapy when dental decay, abscessed teeth, and poor dentition puts them at risk for infections and complications, cancelling or delaying necessary medical care. Just as critically, there are the social and physical costs to individuals from the stigma of poor dentition on securing employment, eating without difficulty, and missing school and work days because of dental pain and dysfunction.¹⁶ Foundational competency in oral health should be required of all health professions trainees and mandated as part of IPE. Ellner and Phillips in their paper *The Coming Primary Care revolution*¹⁷ suggest that design of care based on the principles of team care will require new approaches to workforce training and education.

At the 10,000-foot level, innovations in education and practice represent adaptive change as defined by Heifetz,¹⁸ as opposed to technical change. Such change involves loss for 1 group or another. The dental profession is concerned about loss of income and autonomy, and the medical profession shares these concerns. Successful change requires leadership and planning, like the creation and implementation of integrated curricula and training programs. Advancements in science have led to medical treatments for diseases previously managed surgically, as evidenced by the growth of precision medicine. Even dental decay is amenable in many cases to medical treatment,¹⁹ although dentists are not yet ready to throw away the drill. Prevention of dental decay and periodontal disease is possible today because of a greater understanding of inflammation and immunology, which will enable the relationship between periodontitis, cardiovascular disease, diabetes, and even Alzheimer's disease to become clearer over time. The dental profession has a superb record of improvement in oral health for most but not all Americans; integration with medicine offers a bidirectional path to improve the health of all. Americans log over 550 million visits to a primary care provider annually,²⁰ but almost half of the population does not see a dentist in any given year.²¹ A primary care provider can serve as a conduit to better oral health through oral screenings, providing sealants and referral to dental professionals.²² Dental professionals in turn can close gaps in care for their patients, through vaccinations, medical screenings, early diagnosis, and referrals to medical care. Changes in practice patterns hold the promise of more comprehensive care and enhanced patient outcomes. As Casciaro et al. suggest,²³ breaking down silos requires either redesign of formal organizational structures, which can be costly and slow, or identification and implementation of activities that facilitate boundary crossing and cultural change. Oral health and the dental profession could change scope as well by

providing greater general health evaluation and advice. Rather than advocate for HPV vaccinations, dentists could provide HPV vaccinations as part of a comprehensive campaign against oral cancer. The culture of dentistry must change and enable professionals to consider themselves and be perceived by health professions peers and patients as part of the team of health professionals providing "whole person care."

Multiple reports, from the 1995 Institute of Medicine study *Dental Education at the Crossroads*,²⁴ to the first-ever Surgeon General's Report²⁵ on the importance of oral health in 2001, to the recent "Advancing Dental Education in the 21st Century" report²⁶ have raised the critical issues impeding oral health integration, but offer little guidance for change. The last report, building on the landmark Gies Report of 1926,²⁷ dentistry's Flexner Report equivalent, started with the premise that dentistry must be like ophthalmology (part of the whole person care team) and not optometry (technical service providers) but fell short on recommendations for change that could address the cultural divide and promote integration. The data showed an overall decrease in science and whole patient health education among dental schools, persistence of procedural training, and lack of mandatory internship; underscoring the marginalization of dentists from the rest of the health care team. Major suggestions for building alliances for interprofessional education exist, like medical-dental school alliances, but cross appointment of dental and medical school faculty is rare, as is recruitment of dual-degree faculty who have the breadth of training and experience to teach in both schools. Evolution in health professions education is frequently dominated by values of independence and autonomy, not collaboration.

3 | THE SOLUTION

It is time for experiments in education and practice to foster integration.^{28,29} The Lancet Report of 2010³⁰ urged interprofessional medical, nursing, and pharmacy education to emphasize how the interprofessional practice of health care should influence education and training. Although the Gies Report of 1926 is mentioned in this paper, oral health was excluded. Oral health is too often separated, as the education and training of physicians omits it from the repertoire of major health care education training and delivery. Health care system reforms are proceeding at a rapid pace, yet most national health leaders overseeing these reforms lack training or experience in oral health. It is time to reemphasize oral health in mainstream health care delivery and in health professions' education. Both improving oral health content of medical education and enhancing the medical aspects of dental students' education should be promoted.

Progress in medical science and technology has led to a degree of specialization that dominates medicine, dentistry,

and all of health care delivery. The rise in specialization in the last century has delivered extraordinary benefits and breakthroughs.³¹ In this century, the challenge will be to use the intersection of disciplines to solve a new set of problems. There is a critical need for leaders who see integrative care that considers oral health of paramount importance. These individuals would advocate for oral health inclusion in general health care, from prevention to chronic disease management to tertiary care. Currently there are very few individuals who can advocate effectively within the Center for Medicare and Medicaid Services, the Department of Health and Human Services, or other high-level policy-making organizations. Leaders must combine intimate knowledge of current dental care delivery and reimbursement with public health skills if they are to accomplish successful integration of oral health with evolving payment approaches.³² A significant factor in giving such individuals clout would be first-hand knowledge of oral health through unique education and training programs. Additionally, residency training in a general practice dental residency that is part of department of medicine rather than surgery, and a primary care residency with new parameters, would equip individuals with a sophisticated understanding of the medical and dental healthcare systems and clinical practice. These leaders could enhance the public's health both by leading model interprofessional teaching practices which include medical, dental, nursing, hygiene, and pharmacy students and by championing oral health in policy debates. The opportunity to unify dental and medical education was missed over a century ago. The goal now should be creation of multidisciplinary teams in interprofessional teaching practices, led by appropriately prepared leaders who can lead by crossing professional boundaries.

The problems of access to oral health care and cost reduction can be improved with the ideas presented here. Catalytic mechanisms are Jim Collins' idea for change and transformation.³³ Such mechanisms produce unpredictable results, redistribute power away from traditional power-holders toward the overall system, have sharp teeth, attract the right people, and eject viruses to produce an ongoing effect. Integrating oral health education and clinical practice with medicine is a catalytic mechanism. The Surgeon General's 2020 Report on Oral Health is in process and may provide a platform to enable us to prepare the leaders who can master a catalytic mechanism.

Where are the educational and training experiments to cross boundaries and breakdown the silos? Do catalytic mechanisms exist to guide oral health integration into primary care? Harvard is piloting a variety of programs promoting whole-person care that integrate medicine and dentistry. First-year dental and medical students learn together in the classroom and in primary care teaching practices at the affiliated hospitals and the Harvard Dental Center.³⁴ A well described nurse practitioner program with Northeastern University has

been created and successfully implemented within the HDC to train medical, dental and nursing students in team based care.³⁵ A general dental internship at the Cambridge Health Alliance called the *Oral Physician Program* has dental residents aligned and involved with Family Medicine and Primary Care.³⁶ A new, scholarship supported dual degree DMD/MD program, is available for qualified students, to be followed by a special primary care residency. This program is being discussed with medical schools lacking a dental school as a means of expanding their educational reach and introducing oral health into their curricula. Other university-associated dental schools could promote interprofessional learning in similar ways. A range of interventions from the classroom to clinical training sites will be needed to effect cultural change and full integration.

Bold changes are needed. It is time for medical schools to incorporate oral health competencies, such as those proposed by CIPCOH,³⁷ into their curricula. These competencies could be worked into the AMA's "Re-Imagining Residency" initiative. Dental schools could incorporate competencies for medical history taking, chronic disease screenings, and vaccinations into their curricula; the ADA could consider for dentistry an initiative similar to the AMA's "Accelerating Change in Medical Residency." Clinical training for all disciplines should occur in multidisciplinary practices where students from across the health professions train together to deliver comprehensive care. Clinical training sites should incorporate oral health outcomes into their quality metrics to ensure that the competencies learned in class are competencies put into practice. Health systems should shift to team-based care approaches like those embodied by Kaiser Northwest, Marshfield Clinic, and Harvard's Crimson Care Collaborative, which integrate oral health care into the medical care they provide. Policy makers and health benefits providers should fund greater research to understand how integrated care can lead to improved health outcomes and lower costs through enhanced preventive care and disease management protocols. Finally, and perhaps most boldly, a small cadre of medical and dental schools should join Harvard in training a small number of highly qualified dual-degree clinicians who will lead the integration of oral health into the health system, from training, to clinical practice to benefits design to research. A few pioneers are needed to transform education and clinical practice and lead the way to better health. It is time for the AMA, ADA AAMC, ADEA, and major funders like HRSA, AHRQ, CMMS, and NIH to put their money and their attention where their mouth is.

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